GN01025 PATENT

IN THE CLAIMS

Please amend the claims as follows.

1. (currently amended) A method for ~~reproducing an electronic image (22), comprising pixels having an input pixel value I_p (21), on a multilevel output device having N allowable output pixel values (24), comprising the steps of :~~

~~for each pixel p choosing a real subset S_p from said N allowable output pixel values (24), said subset S_p containing~~

~~N_p allowed output pixel values (24) where $0 < N_p < N$,~~

~~halftoning said electronic image by a multilevel halftoning algorithm by quantizing, for each of said pixels, said input pixel value (21) to obtain a corresponding output pixel value (24) out of the N_p allowed values in S_p;~~

~~rendering said image on said multilevel output device by~~

~~rendering said pixels using said obtained output pixel values (24)~~

transforming an input image comprising pixels having a first state out of a first set of M (M>2) possible states into a halftoned image comprising quantized pixels having a second state out of a second set of N possible states, said second set being a real sub-set of said first set, the method comprising the steps of:

obtaining an input pixel from said input image, said input pixel having a first error corresponding to an error between a first modified pixel value and a first quantized pixel value;

modifying said input pixel to obtain a next modified pixel value by adding at least a portion of the first error;

selecting a third set of P possible states, said third set being a real sub-set of said second set;

quantizing said next modified pixel value to obtain a next quantized pixel value by selecting one state out of said third set; and

calculating a next error as a difference between said next modified pixel value and said next quantized pixel value,

wherein the step of selecting a third set depends on a state of said input pixel.

2-9 (cancelled)

10. (new) The method of claim 1, wherein said first, second and third sets of states of a pixel correspond with intensity levels of the pixel.

11. (new) The method of claim 1, wherein said first, second and third sets of states of a pixel correspond with combinations of ink levels of the pixel.

12. (new) The method according to claim 1, further comprising a step of rendering said halftoned image using said second set of N states.

13. (new) A controller for transforming an input image comprising pixels having a first state out of a first set of M (M>2) possible states into a halftoned image comprising quantized pixels having a second state out of a second set of N possible states, said second set being a real sub-set of said first set, said controller comprising:

means for obtaining an input pixel from said input image, said input pixel having a first error corresponding to an error between a first modified pixel value and a first quantized pixel value;

means for modifying said input pixel to generate a next modified pixel value by adding at least a portion of the first error;

means for selecting a third set of P possible states, said third set being a real sub-set of said second set;

means for quantizing said next modified pixel value to obtain a next quantized pixel value by selecting one state out of said third set;

means for calculating a next error as a difference between said next modified pixel value and said next quantized pixel value; and

means for selecting said third set as a function of a state of said input pixel.

14. (new) A system comprising:

a controller for transforming an input image comprising pixels having a first state out of a first set of M (M>2) possible states into a halftoned image comprising quantized pixels having a second state out of a second set of N possible states, said second set being a real sub-set of said first set, said controller comprising:

means for obtaining an input pixel from said input image, said input pixel having a first error corresponding to an error between a first modified pixel value and a first quantized pixel value;

means for modifying said input pixel to generate a next modified pixel value by adding at least a portion of the first error;

means for selecting a third set of P possible states, said third set being a real sub-set of said second set;

means for quantizing said next modified pixel value to obtain a next quantized pixel value by selecting one state out of said third set;

means for calculating a next error as a difference between said next modified pixel value and said next quantized pixel value; and

means for selecting said third set as a function of a state of said input pixel; and

a rendering system capable of rendering said second set of N states.